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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/994,178

11/26/2001

Klaus M. Irion

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EXAMINER

AGGARWAL, YOGESH K

ART UNIT

PAPER NUMBER

2622

MAIL DATE

DELIVERY MODE

06/12/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/994,178

Applicant(s)

IRION ET AL.

Examiner

Yogesh K. Aggarwal

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-19 and 21-25 is/are pending in the application.
- 4a) Of the above claim(s) 6, 7 and 10-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8, 13-15, 17-19 and 21-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Arguments

1. Applicant's arguments filed 04/10/2007 have been fully considered but they are not persuasive.

Examiner's response:

2. Applicant argues with regards to claim 1 that Ito and Yabe fail to teach an assembly having an image sensor that is transverse to the longitudinal axis of the shaft. The Examiner respectfully disagrees. The claim does not recite as to which side of the image sensor surface is transverse to the image sensor. Ito and Yabe teach at least one side of the image sensor being transverse to the longitudinal axis of the shaft. Therefore as broadly as claimed the image sensor is transverse to the longitudinal axis of the shaft . In other words, having at least one side of the image sensor being transverse to the longitudinal axis of the shaft would also be read as image sensor image sensor being transverse to the longitudinal axis of the shaft . Further limitation/clarification of "image sensor" would be required for reconsideration.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 8 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al. (US Patent # 5,454,366).

[Claims 1, 8 and 18]

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It teaches an image pick-up module (figures 1 and 5), especially for an endoscope, comprising an endoscope shaft having a longitudinal axis an electronic image sensor (figure 5, 31) transverse to the longitudinal axis of the shaft (See explanation above); a single-piece circuit board (figure 5, circuit board 40) which is electrically bonded to said image sensor (31), said circuit board having at least three integral sections, with a first section and a second section (the two sections of the circuit board as shown in figure 1 as 40c and a not shown section opposite 40c which is 40b) extending in spaced relation one to the other and crosswise to said image sensor (circuit board sections 40b and 40c are crosswise to image sensor 31, col. 4 lines 20-35),

said third section (40d) being arranged between the first (40c) and the second sections (40b)

said circuit board being folded from a planar board blank comprising at least said integrally first, second and third sections (figure 5 shows three integral sections namely 40a, 40b and 40d, col. 4 lines 36-44 teach that the circuit board is folded in a four-sided space) and

said third section (40d) of said blank being arranged between said first and second sections of said blank (40d as shown in figure 1 is arranged between 40c and an opposite section 40e)

at least one cable (bundle 43) electrically bonded to an outside surface of said circuit board leading away from said circuit board (figure 5);

wherein said image sensor (31) is arranged on one end of said circuit board opposite said third section (figure 1 shows image sensor out of the page from section 40a and opposite third section 40d).

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5. Claims 1, 2, 8, 14, 15, 17-19, 21, 22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Yabe (US Patent # 4,741,327).

[Claims 1, 8 and 18]

Yabe teaches an image pick-up module (figures 6 and 7), especially for an endoscope, comprising an endoscope shaft having a longitudinal axis an electronic image sensor (Figures 6 and 7, image sensor 40) transverse to the longitudinal axis of the shaft (See explanation above); a single-piece circuit board (figure 7, circuit board 42) which is electrically bonded to said image sensor (40), said circuit board having at least three integral sections, with a first section and a second section (the two sections 42a and 42b) extending in spaced relation one to the other and obliquely or crosswise to said image sensor (circuit board sections 42a and 42b are oblique and crosswise to image sensor 40, col. 3 line 66-col. 4 line 17),

Yabe teaches that flexible circuit board 42 is made of a synthetic resin, is adhered and fixed to other side surface of solid-state image sensor 40. Circuit board is then bent and surrounds prism 36 and the other end is then fixed to side portion 28A (Col. 3 lines 25-30). Therefore it is noted that a plane flexible circuit board comprising at least first, second and third sections is bent and folded around the image sensor 40 and the prism 36.

said third section (bottom portion of circuit board opposite image sensor 40) being arranged between the first and the second sections (See figure 7)

at least one cable (bundle 46) electrically bonded to an outside surface of said circuit board (electrical connections between lines 48 and circuit board 42) leading away from said circuit board (col. 3 lines 33-40);

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wherein said image sensor (40) is arranged on one end of said circuit board opposite said third section (see figure 7).

[Claim 2]

Yabe teaches wherein said first sections (vertical parts of 42a and 42b) are parallel to one another and third section ((bottom portion of circuit board opposite image sensor 40) extends crosswise to said first and second sections (42a and 42b).

[Claims 14, 15, 17]

Yabe discloses in figure 7 an oblique section on the left side to accommodate the imager 17 and having a space to accommodate the image sensor and is read as a recess. The imager is read as an electric component contained in the circuit board. [Claim 19]

Yabe would inherently have at least one electric circuit board conductor for electrically connecting first and second section since the whole of the circuit board is integral.

[Claim 21]

Yabe discloses different sections of a circuit board 40 (42A, 42B and a bottom third section) that with an image pick up element 40 and a bottom third section being arranged between said first and second sections of each blank (figure 7) that are bent in spaced relation to one another. Yabe also discloses having a first and second section having cable attached and a third section connected to the first and second section which are flexible cable (bundle 46) electrically bonded to an outside surface of said circuit board (electrical connections between lines 48 and circuit board 42) leading away from said circuit board (col. 3 lines 33-40).

[Claims 22]

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This is a method claim corresponding to apparatus claims 1 and 21. Therefore claim 22 is analyzed and rejected based upon apparatus claims 1 and 21 respectively.

[Claim 24]

Yabe discloses an image pick-up module (figures 6 and 7), especially for an endoscope, an endoscope shaft having a longitudinal axis an electronic image sensor (figure 5, 31) including an image pick up surface transverse to the longitudinal axis of the shaft including an image pick-up surface (See explanation above); a circuit board (42) electrically bonded to said image sensor (figure 7), said circuit board comprising first and second sections (42A and 42B), said first and second sections each having a first end bonded to said image sensor and a second end (figure 7 shows one end of 42A and 42B bonded to image sensor 40), wherein said first and second sections 42A and 42B extend longitudinally from said image sensor substantially perpendicular to the image pick-up surface of said sensor and substantially parallel to each other; and a third section integrally formed with the second end of said second section (bottom of said circuit board opposite said image sensor is integrally formed with the second end of said image sensor); at least one cable (bundle 46) electrically bonded to an outside surface of said circuit board (electrical connections between lines 48 and circuit board 42) leading away from said circuit board (col. 3 lines 33-40);

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 13 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yabe (US Patent # 4,741,327).

[Claim 13]

Yabe discloses wherein an interior of said circuit board is filled with adhesive 50. However Official Notice is taken of the fact that it is very common to have an adhesive that is electrically non-conductive, filling compound like epoxy resin. Therefore taking the combined teachings of Yabe and Official Notice, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have an adhesive that is electrically non-conductive, filling compound like epoxy resin in order to have high heat conductivity, which makes the temperature distribution uniform at the time of cure, so that the necessity of stepwise heating is eliminated at the time of cure and the procedure of curing is made easier to practice.

[Claim 23]

See Examiner's notes regarding Claim 13.

8. Claims 3-5 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yabe (US Patent # 4,741,327) in view of Pelchy (US Patent # 5,754,313).

[Claim 3]

Yabe discloses the claimed limitations of claim 1 but fails to disclose wherein the third section has a substantially V-shaped configuration. However Pelchy '313 discloses hybrid boards 61 and 62 that are inclined inwardly from the imager package toward the transmission wires 33-33 (col. 5 lines 52-56, figure 6) in a substantially V-shape in order to protect the electrical components located at the bottom of the package and the need of a substrate is eliminated as taught in Pelchy '313 (col. 5 lines 63-67).

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Therefore taking the combined teachings of Yabe and Pelchy it would be obvious to one skilled in the art at the time of the invention to have been motivated to have used hybrid boards 61 and 62 that are inclined inwardly from the imager package toward the transmission wires 33-33 in a substantially V-shape in order to protect the electrical components located at the bottom of the package and the need of a substrate is eliminated as taught in Pelchy '313 (col. 5 lines 63-67).

[Claim 4]

Pelchy '313 teaches wherein the V-shaped hybrid boards have a straight-line prolongation while Yabe teach a first and second section. Therefore taking the combined teachings, a third section having a V-shaped hybrid board will have a straight-line prolongation in relation to the first and second section.

[Claim 5]

Pelchy '313 teaches V-shaped hybrid boards and Yabe teach first and second sections that are parallel to each other.

[Claim 25]

See claim 3.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K. Aggarwal whose telephone number is (571) 272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571)-272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

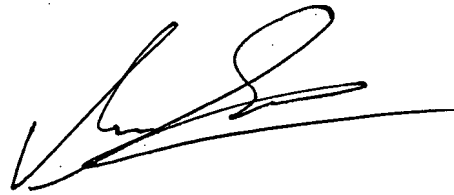
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June 8, 2007

A handwritten signature in black ink, appearing to read 'Vivek Srivastava', with a long horizontal stroke extending to the right.

VIVEK SRIVASTAVA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600